



RESEARCH AND PRACTICE OF ONLINE AND OFFLINE BLENDING "GOLDEN LESSON" FOR CORE COURSES OF PHARMACEUTICAL ENGINEERING

Hua Li¹, RuiTao Su², Yadong Zhang¹, *Xiaoshuang Chen²

¹ School of Chemical Engineering, Zhengzhou University, Zhengzhou, China.

² School of Mechanical and Power Engineering, Zhengzhou University, Zhengzhou, China. *(Corresponding Author)

ABSTRACT

At present, many colleges in China still adopt the traditional mode, which does not reflect the characteristics of colleges and restricts the cultivation, this paper aims at how to construct first-class courses, in the face of the development of new business forms of pharmaceutical industry, new technological transformation and new engineering science construction, in order to comprehensively improve the quality of talent cultivation of pharmaceutical engineering specialty in Zhengzhou university, online and offline blending "Golden lesson" was established from multiple visual angles, such as curriculum construction, online teaching platform line, online and offline teaching mode reform, etc., so as to make it suitable for the development of new pharmaceutical industry, which provide references for teaching mode reform to improve the teaching quality, and create high-quality Golden courses.

KEYWORDS: Core Courses, Pharmaceutical Engineering, Talent Cultivation, Online and Offline, Blending "Golden Lesson"

1. INTRODUCTION

According to the "the opinions of reforms Implementation of the Ministry of Education on the Construction of first-class Undergraduate courses", the Ministry of Education has deployed the construction of first-class undergraduate courses ("gold lesson"). The important foundation of "first-class" construction is to build world-class undergraduate education, and the foundation of first-class undergraduate education is first-class curriculum construction. It is important how to construct first-class courses. In recent years, with the development of internet technology, modern teaching platforms such as Super Star Learning, Rain Class and MOOC have risen rapidly, and the online and offline blending teaching model has emerged. Under this background, in order to improve the existing teaching mode, adapt to the education status of colleges and universities, improve the teaching quality of pharmaceutical engineering majors, and cultivate pharmaceutical engineering talents with innovative spirit and ability, the reform of online and offline blending teaching mode based on MOOCs platform was carried out to solve the existing teaching problems. Blended teaching can combine the advantages of traditional learning methods and networked learning, not only give full play to the leading role of teachers, but also fully embody the initiative, enthusiasm and creativity of students. It can not only improve the teaching quality; Moreover, it is of great significance to promote teachers to participate in curriculum innovation, content innovation and mode innovation, and to form a teaching reform atmosphere of creating "golden lesson" and eliminating "water class".

2. CONSTRUCTION OF ONLINE AND OFFLINE BLENDING "GOLDEN LESSON"

1) Curriculum construction

Curriculum construction is different from traditional teaching methods. The construction of core curriculum system for pharmaceutical engineering majors set up the principle of student-oriented and teaching effect-oriented, insist on the teaching concept of "student-centered", and focuses on the integration of knowledge, ability and qualities. Strengthen students' comprehensive ability to solve complex problems.

Therefore, the construction of the core curriculum system of pharmaceutical engineering major is to divide into three layers according to the difficulty of knowledge points and the requirements of grasp knowledge. The first layer is the basic layer, which is the initial introduction of the course and needs students to understand; The second layer is some theoretical systems, which need students to understand; The third layer is engineering cases and applications, which need students to master and apply in practice. For different levels of knowledge, the emphasis should be different. For example, micro-video mainly focuses on the third level, which is also the focus and difficulty of the course. The three-layer knowledge system is from shallow to deep, from easy to difficult, and with the continuous advancement of the course content, students are required to enter deep learning from the surface to what lies behind. Combined with the characteristics of engineering, through the engineering cases, students can finally achieve the learning goal of understanding front edge knowledge, understanding theoretical knowledge, and use it freely.

2) Build an online teaching platform

According to its functions, the teaching platform is divided into three sections: teaching activity area, teaching resource area and teaching data statistics. The teaching activity area includes attendance record, questionnaire survey, voting, screening, course notification, etc. The teaching resource area includes course materials, online course videos, online exercises, online tests, online discussions and other functions, which is the key construction content of the course. Teaching data statistics include the percentage of chapter views, number of discussions, student scores manage system, etc.

3) Reform of online and offline teaching mode

The design of online and offline teaching mode is realized through the teaching process of "before class - in class - after class, online - offline - online, preview - internalization - consolidation".

A. Online Learning

Online teaching breaks through the restrictions of classroom on teaching and learning activities in location. In this regard, teachers should arrange the relatively easy to understand content and extracurricular knowledge expansion content as online learning content, and publish it in various forms on the teaching platform. Before class, students are the center and online resources are the support. Teachers assign learning tasks before class and guide students to complete the learning of general knowledge independently. At the same time, teachers provide self-test exercises for students on the platform to check the completion of students' preview and the mastery of knowledge points. After class, teachers answer students' learning questions on the learning platform, evaluate students' academic performance based on online assignments, and actively guide students to learn about the frontier, the latest literature, and expanded videos.

B. Offline Learning

Offline teaching still takes classroom teaching as the main line. before class, as the main guider, teachers first check students' online learning by asking questions and discussing in class, and then explain key and difficult contents in the form of multimedia teaching and engineering case according to the pre-preparation. In the classroom, teachers should pay attention to cultivating students' overall concept, overall professional consciousness and professional ability, and pay attention to the pertinence of teaching. In offline teaching, teachers should improve and process the existing multimedia courseware, and display the charm of pharmaceutical engineering in a multi-level. Update the teaching content according to the latest development.

The course teaching design is listed in Figure 1.

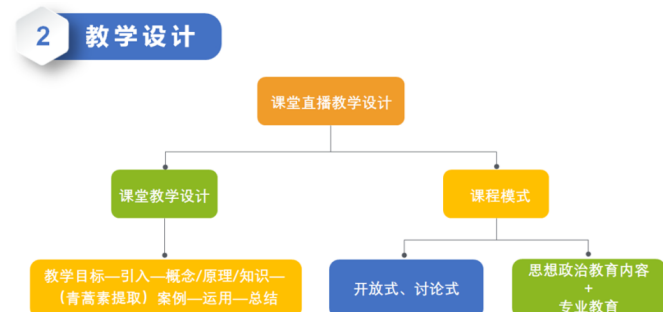


Figure 1: The course teaching design

The teaching design of the course insist on the principle of "student-centered" and "teaching effect-oriented", pays attention to the integration of knowledge, ability and accomplishment, and strengthens the comprehensive ability of students to solve complex problems. Through case analysis, students' understanding and consolidation of knowledge of this course are deepened, so that theoretical knowledge and practice are more closely combined.

4)Process examine design

Online score (40%) + meeting class (30%) + terminal examinations (30%)=100 scores

The blended teaching mode is adopted, which combines students' independent watching of course videos, completing online homework and flipped classroom activities.

①Complete the overall design plan of the process examine, the proportion of the final examination shall not exceed 30%, and submit the final scores and sub-item scores at the end of the term;

Exercises and tests used in the teaching process, the number of subjective open questions shall not be less than 30%.

②According to the learning and practical tasks, carry out online and offline evaluation and display for the homework works submitted by students, and complete the construction of students' homework display website. In short, teachers should carry out classroom teaching modes that combine online learning and flipped classroom, integrate the advantages of micro-class, MOOC and flipped classroom, establish a diversified learning evaluation system, and explore a diversified assessment and evaluation mode that integrates online and offline, process evaluation and final evaluation, so as to promote students' autonomous learning, process learning and experiential learning. Course grades are evaluated by a combination of process assessment and final assessment.

3.FEATURES FOR ONLINE AND OFFLINE TEACHING MODE

1. Change the traditional teaching mode, innovate and promote the "classroom revolution": The blended teaching mode of "online active learning + offline interactive discussion" is based on MOOCs etc. digital teaching tools and combined with the actual situation of the school. The knowledge points are mainly about the key and difficult points in the course, which is more in-depth and thorough than traditional learning, and it is a more condensed quality class. It can provide students with a real sense of participation. The implementation of this project is an impact on traditional teaching, innovation, and promote the "classroom revolution". In flipped classrooms, teachers, in addition to imparting knowledge, guide students into the scene where they can mastery Learning, which is more valuable to students.
2. Student-centered: Through bullet screen comments, submission, speech in the discussion and other forms of teacher-student interaction and student-student interaction to mobilize learning enthusiasm and stimulate students' innovation ability.
3. Case teaching: At the same time of theoretical explanation, based on the advantages of visualization, repeatability and flexibility of online courses and resources, engineering cases are taken as the starting point to guide students to understand the relationship of mutual need and mutual promotion between theoretical knowledge and engineering practice of pharmaceutical separation engineering, and cultivate students' engineering awareness and global concept.

4.CONCLUSION

In order to comprehensively improve the quality of talent cultivation of pharmaceutical engineering specialty and construct first-class courses in Zhengzhou university, online and offline blending "Golden lesson" was established. Blended teaching can combine the advantages of traditional learning methods and networked learning, not only give full play to the leading role of teachers, but also fully embody the initiative, enthusiasm and creativity of students, which provide references to create the best undergraduate teaching mode in the world, and train the leading engineering personnel with innovation, creation and entrepreneurship spirit for our country.

Conflicts of Interest: The authors declare no conflict of interest.

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